

IN THE CLAIMS

Amend claims 1-4, 8-10, 13, 19, 20-22, 24, 25, 27, 30, 35, 40-43 and add new claims 44-64 such that the new claim set reads as follows:

1. (Currently Amended) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising ~~the steps of:~~

providing a concentric drill string ~~having~~ consisting essentially of an inner pipe, ~~said inner pipe~~ having an inside wall and an outside wall and ~~situated within~~ an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, to the concentric drill string; and

delivering drilling medium through one of said annulus or inner pipe ~~for operating to~~ the directional drilling means ~~to form said directional or horizontal wellbore~~ and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe.

2. (Currently Amended) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising ~~the steps of:~~

providing a concentric drill string ~~having~~ consisting essentially of an inner pipe, ~~said inner pipe~~ having an inside wall and an outside wall and ~~situated within~~ an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole and one or more tools selected from the group consisting of a downhole data collection and transmission means, a shock sub, a drill collar and an interchange means, to the concentric drill string; and

delivering drilling medium through one of said annulus or inner pipe ~~for operating to~~ the directional drilling means ~~to form said directional or horizontal wellbore~~ and removing

exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe.

3. (Currently Amended) The method of claim 1 or 2 wherein the drilling medium is delivered through the annulus and the exhaust drilling medium is extracted through the inner ~~tube~~ pipe.

4. (Currently Amended) The method of claim 1 or 2 wherein the drilling medium is delivered through the inner ~~tube~~ pipe and exhaust drilling medium is extracted through the annulus.

5. (Previously Presented) The method of claim 1 or 2 wherein drilling cuttings are extracted together with the exhaust drilling medium.

6. (Previously Presented) The method of claim 1 or 2 wherein drilling cuttings and hydrocarbons are extracted together with the exhaust drilling medium.

7. (Previously Presented) The method of claim 1 or 2 wherein said directional drilling means is a reverse circulating directional drilling means.

8. (Currently Amended) The method of claim 1 or 2, said bottomhole assembly further comprising a downhole flow control means positioned at or near the directional drilling means, said method further comprising ~~the step of~~ preventing a flow of hydrocarbons from the inner pipe or the annulus or both to the surface of the wellbore by operation of said downhole flow control means.

9. (Currently Amended) The method of claim 1 or 2 further comprising ~~the step of~~ providing a surface flow control means positioned at or near the surface of the wellbore for preventing flow of hydrocarbons from a space between the outside wall of the outer pipe and a wall of the wellbore.

10. (Currently Amended) The method of claim 9, said surface flow control means further comprising a discharging means, said method further comprising ~~the step of~~ removing said exhaust drilling medium ~~and said drilling cuttings~~ through said discharging means from said wellbore.

11. (Previously Presented) The method of claim 10 wherein said discharging means further comprises a flare means for flaring hydrocarbons produced from the wellbore.
12. (Previously Presented) The method of claim 1 or 2 wherein said drilling medium comprises air and said directional drilling means comprises a reciprocating air hammer, a drill bit and a bent sub or housing.
13. (Currently Amended) The method of claim 1 or 2 wherein said drilling medium comprises air and said directional drilling means comprises a rotary drill bit, ~~using~~ a rotary table or top drive drilling system and a bent sub or housing.
14. (Previously Presented) The method of claim 1 or 2 wherein said drilling medium comprises air and said directional drilling means comprises a drill bit, a steerable downhole air motor and a bent sub or housing.
15. (Previously Presented) The method of claim 14 wherein said steerable downhole air motor is a reverse circulating steerable downhole air motor.
16. (Previously Presented) The method of claim 1 or 2 wherein said drilling medium comprises drilling mud and said directional drilling means comprises a drill bit, a mud motor and a bent sub or housing.
17. (Previously Presented) The method of claim 16 wherein said mud motor is a reverse circulating mud motor.
18. (Previously Presented) The method of claim 12 wherein said reciprocating air hammer is a reverse circulating reciprocating air hammer.
19. (Currently Amended) The method of claim 1 or 2 wherein said drilling medium is selected from the group ~~comprising~~ consisting of drilling mud, drilling fluid and a mixture of drilling fluid and gas and said directional drilling means comprises a drill bit, a rotary table or top drive drilling system and a bent sub or housing.
20. (Currently Amended) The method of claim 1 or 2, said ~~concentric drill string~~ directional drilling means further comprising a venturi, said method further comprising ~~the step of~~

accelerating said exhaust drilling medium through said venturi so as to facilitate removal of said exhaust drilling medium from the concentric drill string.

21. (Currently Amended) The method of claim 1 or 2 further comprising ~~the step of~~ providing a shroud means positioned between the outside wall of the outer pipe and a wall of the wellbore for preventing release of exhaust drilling medium outside the concentric drill string and into the ~~hydrocarbon~~ formation.

22. (Currently Amended) The method of claim 1 or 2 further comprising ~~the step of~~ providing a suction type compressor means for extracting said exhaust drilling medium through said annulus or inner pipe.

23. (Previously Presented) The method of claim 2 wherein said downhole data collection and transmission means comprises a measurement-while-drilling tool or a logging-while drilling tool or both.

24. (Currently Amended) The method of claim 1 further comprising ~~the step of~~ providing an interchange means for directing said ~~extracted~~ exhaust drilling medium through said annulus or inner pipe.

25. (Currently Amended) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string ~~having~~ consisting essentially of an inner pipe, ~~said inner pipe~~ having an inside wall and an outside wall and ~~situated within~~ an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, operably connected to the concentric drill string; and

a drilling medium delivery means for delivering drilling medium through one of said annulus or inner pipe ~~for operating to~~ the directional drilling means to form said directional or

~~horizontal wellbore~~ for entraining and removing drill cuttings ~~exhaust drilling medium by extracting said exhaust drilling medium~~ through said other of said annulus or inner pipe.

26. (Previously Presented) The apparatus of claim 25 wherein said bottomhole assembly further comprising a downhole flow control means positioned at or near the directional drilling means for preventing flow of hydrocarbons from the inner pipe or the annulus or both to the surface.

27. (Currently Amended) The apparatus of claim 25 wherein said bottomhole assembly further comprises one or more tools selected from the group consisting of a downhole data collection and transmission means, a shock sub, a drill collar, a interchange means for directing said ~~exhaust~~ drilling medium and entrained drill cuttings through said annulus or inner pipe, and a downhole flow control means.

28. (Previously Presented) The apparatus of claim 27 wherein said downhole data collection and transmission means comprises a measurement-while-drilling tool or a logging-while drilling tool or both.

29. (Previously Presented) The apparatus of claim 25 further comprising a surface flow control means positioned at or near the surface of the wellbore for preventing flow of hydrocarbons from a space between the outside wall of the outer pipe and a wall of the wellbore.

30. (Currently Amended) The apparatus of claim 29 further comprising a discharging means attached to said surface flow control means for discharging said ~~exhaust~~ drilling medium and said ~~drilling~~ entrained drill cuttings from the wellbore.

31. (Previously Presented) The apparatus of claim 30 further comprising a flare means attached to said discharging means for flaring hydrocarbons produced from the wellbore.

32. (Previously Presented) The apparatus of claim 25 wherein said directional drilling means is a reverse circulating directional drilling means.

33. (Previously Presented) The apparatus of claim 25 wherein drilling medium comprises air and directional drilling means comprises a reciprocating air hammer, a drill bit and a bent sub or housing.

34. (Previously Presented) The apparatus of claim 33 wherein said reciprocating air hammer is a reverse circulating reciprocating air hammer.

35. (Currently Amended) The apparatus of claim 25 wherein drilling medium comprises air and directional drilling means comprises a rotary drill bit, ~~with~~ a rotary table or top drive system and a bent sub or housing.

36. (Previously Presented) The apparatus of claim 25 wherein said drilling medium comprises air and said directional drilling means comprises a drill bit, a steerable downhole air motor and a bent sub or housing.

37. (Previously Presented) The apparatus of claim 36 wherein said steerable downhole air motor is a reverse circulating steerable downhole air motor.

38. (Previously Presented) The apparatus of claim 25 wherein said drilling medium comprises drilling mud and said directional drilling means comprises a drill bit, a downhole mud motor and a bent sub or housing.

39. (Previously Presented) The apparatus of claim 38 wherein said downhole mud motor is a reverse circulating downhole mud motor.

40. (Currently Amended) The apparatus of claim 25 wherein drilling medium is selected from the group ~~comprising~~ consisting of drilling mud, drilling fluid and a mixture of drilling fluid and gas, and said directional drilling means comprises a drill bit, a rotary table or top drive system and a bent sub or housing.

41. (Currently Amended) The apparatus of claim 25, wherein the ~~concentric drill string~~ directional drilling means further comprising a venturi for accelerating said ~~exhaust~~ drilling medium so as to facilitate removal of said ~~exhaust drilling medium~~ drill cuttings from the concentric drill string.

42. (Currently Amended) The apparatus of claim 25 further comprising a shroud means positioned between the outside wall of the outer pipe and a wall of the wellbore for preventing release of ~~exhaust~~ drilling medium or entrained drill cuttings or both outside the concentric drill pipe string and into the formation.

43. (Currently Amended) The apparatus of claim 25 further comprising a suction type compressor means positioned at or near the top of the wellbore for extracting said ~~exhaust drilling medium~~ entrained drill cuttings through said annulus or inner pipe.

44. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, to the concentric drill string; and

delivering drilling medium through said inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said annulus.

45. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising the steps of:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, to the concentric drill string;

delivering drilling medium through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe; and

providing a downhole flow control means positioned at or near the directional drilling means, for preventing a flow of hydrocarbons from the inner pipe or the annulus or both to the surface of the wellbore by operation of said downhole flow control means.

46. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising the steps of:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, to the concentric drill string;

delivering drilling medium through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe; and

providing a surface flow control means positioned at or near the surface of the wellbore for preventing flow of hydrocarbons from a space between the outside wall of the outer pipe and a wall of the wellbore.

47. (New) The method of claim 46, said surface flow control means further comprising a discharging means, said method further comprising the step of removing said exhaust drilling medium through said discharging means from said wellbore.

48. (New) The method of claim 47 wherein said discharging means further comprises a flare means for flaring hydrocarbons produced from the wellbore.

49. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said

outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a rotary drill bit, a rotary table or top drive drilling system and a bent sub or housing for forming a borehole, to the concentric drill string; and

delivering drilling medium comprising air through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe.

50. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a drill bit, a reverse circulating steerable downhole air motor and a bent sub or housing for forming a borehole, to the concentric drill string; and

delivering drilling medium comprising air through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe.

51. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a drill bit, a reverse circulating mud motor and a bent sub or housing for forming a borehole, to the concentric drill string; and

delivering drilling medium comprising drilling mud through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe.

52. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a reverse circulating reciprocating air hammer, a drill bit and a bent sub or housing for forming a borehole, to the concentric drill string; and

delivering drilling medium comprising air through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe.

53. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a drill bit, a rotary table or top drive drilling system and a bent sub or housing for forming a borehole, to the concentric drill string; and

delivering drilling medium selected from the group consisting of drilling mud, drilling fluid and a mixture of drilling fluid and gas, through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe.

54. (New) A method of drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising the steps of:

providing a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

connecting a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, to the concentric drill string;

delivering drilling medium through one of said annulus or inner pipe to said directional drilling means and removing exhaust drilling medium by extracting said exhaust drilling medium through said other of said annulus or inner pipe; and

providing a shroud means positioned between the outside wall of the outer pipe and a wall of the wellbore for preventing release of exhaust drilling medium outside the concentric drill string and into the formation.

55. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole and a downhole flow control means positioned at or near the directional drilling means for preventing flow of hydrocarbons from the inner pipe or the

annulus or both to the surface of the wellbore, operably connected to the concentric drill string; and

a drilling medium delivery means for delivering drilling medium through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe.

56. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, operably connected to the concentric drill string;

a drilling medium delivery means for delivering drilling medium through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe; and

a surface flow control means positioned at or near the surface of the wellbore for preventing flow of hydrocarbons from a space between the outside wall of the outer pipe and a wall of the wellbore.

57. (New) The apparatus of claim 56 further comprising a discharging means attached to said surface flow control means for discharging said drilling medium and said entrained drill cuttings from the wellbore.

58. (New) The apparatus of claim 57 further comprising a flare means attached to said discharging means for flaring hydrocarbons produced from the wellbore.

59. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a reverse circulating reciprocating air hammer, a drill bit and a bent sub or housing for forming a borehole, operably connected to the concentric drill string; and

a drilling medium delivery means for delivering drilling medium comprising air through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe.

60. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a rotary drill bit, a rotary table or top drive system and a bent sub or housing for forming a borehole, operably connected to the concentric drill string; and

a drilling medium delivery means for delivering drilling medium comprising air through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe.

61. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside

wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a drill bit, a reverse circulating steerable downhole air motor and a bent sub or housing for forming a borehole, operably connected to the concentric drill string; and

a drilling medium delivery means for delivering drilling medium comprising air through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe.

62. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a drill bit, a reverse circulating downhole mud motor and a bent sub or housing for forming a borehole, operably connected to the concentric drill string; and

a drilling medium delivery means for delivering drilling medium comprising drilling mud through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe.

63. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly comprising a directional drilling means, said directional drilling means comprising a drill bit, a rotary table or top drive system and a bent sub or housing for forming a borehole, operably connected to the concentric drill string; and

a drilling medium delivery means for delivering drilling medium selected from the group consisting of drilling mud, drilling fluid and a mixture of drilling fluid and gas through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe.

64. (New) An apparatus for drilling a directional or horizontal wellbore in a hydrocarbon formation, comprising:

a concentric drill string comprising an inner pipe, said inner pipe having an inside wall and an outside wall, and an outer pipe having an inside wall and an outside wall, said outside wall of said inner pipe and said inside wall of said outer pipe defining an annulus between the pipes;

a bottomhole assembly, said bottomhole assembly comprising a directional drilling means for forming a borehole, operably connected to the concentric drill string;

a drilling medium delivery means for delivering drilling medium through one of said annulus or inner pipe to the directional drilling means for entraining and removing drill cuttings through said other of said annulus or inner pipe; and

a shroud means positioned between the outside wall of the outer pipe and a wall of the wellbore for preventing release of drilling medium or entrained drill cuttings or both outside the concentric drill string and into the formation.